

**SUPPORTING DOCUMENT NO. 3**

**REVISED TENTATIVE ADDENDUM NO. 5 TO  
CAO NO. 92-01 AND MONITORING AND  
REPORTING PROGRAM**

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN DIEGO REGION

TENTATIVE ADDENDUM NO. 5 TO  
CLEANUP AND ABATEMENT ORDER NO. 92-01

KINDER-MORGAN ENERGY PARTNERS, LP o/p SFPP, LP, POWERINE OIL COMPANY,  
SANTA FE PACIFIC PIPELINE PARTNERS, LP, ~~SHELL OIL COMPANY, TEXACO~~  
~~REFINING AND MARKETING INC., EQUILON ENTERPRISES LLC, AND~~  
EXXONMOBIL OIL CORPORATION

MISSION VALLEY TERMINAL  
9950 & 9966 SAN DIEGO MISSION ROAD  
SAN DIEGO COUNTY

The California Regional Water Quality Control Board, San Diego Region (hereinafter Regional Board) finds that:

1. ~~This addendum incorporates by reference~~ Except as contradicted or superseded by the Findings set forth in this Addendum, all of the previous findings in Cleanup and Abatement Order No. 92-01 and addenda-Addenda thereto (CAO) are incorporated into this Addendum.
2. Shell Oil Company, Equilon Enterprises LLC, and Texaco Refining and Marketing Inc., (Collectively know as "Shell") did not cause or permit petroleum hydrocarbon waste to be discharged, or deposited where it probably would be discharged, to the plume of contaminated ground water from the Mission Valley Terminal that is the subject of the CAO (MVT plume). Shell did cause or permit petroleum hydrocarbon waste from an adjacent facility to be deposited in soil and discharged to ground water beneath that facility, creating a separate and distinct plume of contaminated ground water that did not contribute to the MVT plume.
3. Kinder-Morgan Energy Partners, LP O/P SFPP, LP, Powerine Oil Company, Santa Fe Pacific Pipeline Partners, LP, ~~Shell Oil Company, Texaco Refining And Marketing Inc., Equilon Enterprises LLC, and ExxonMobil Oil Corporation~~ (hereinafter the Dischargers) have completed the investigation of ~~pollutants- waste constituents~~ in soil and groundwater as required by Time Schedule Order No. R9-2002-0042 (TSO). The Dischargers have proposed cleanup milestone dates for the off-property ~~contamination~~ pollution in their *Final Summary Report* dated January 30, 2004.
- 2.4. Pollution from discharges of petroleum hydrocarbon fuel waste from the Mission Valley Terminal (MVT) extends approximately 4900 feet beyond MVT to the southwest across the parking lot at Qualcomm Stadium (hereinafter referred to as off-property pollution). The Qualcomm Stadium complex and associated parking areas are owned by the City of San Diego.
- 4.5. The milestone cleanup dates submitted by the Dischargers in the 2004 *Final Summary Report* are not aggressive enough to protect and restore the designated water quality needed to protect existing and anticipated future beneficial uses of the groundwater in a

timely manner. The off-property pollution can be cleaned up ~~in a shorter time frame by~~ the year 2013, if more aggressive cleanup methods are used.

- ~~5.6.~~ The groundwater pollution ~~associated with~~ from discharges at ~~and from~~ the MVT are ~~continuing threats to water quality and must be investigated~~, monitored, contained, and cleaned up. A Quarterly Monitoring Program, a revised Corrective Action Plan, and further soil and groundwater investigations are needed to ~~measure the~~ document the Dischargers' progress toward containment and to adequately assess the effectiveness of cleanup of the pollution. ~~Additionally, in order to address any new discharges of pollutants from the facility, the Dischargers must report all releases of pollutants from all systems that contain, store, and/or convey petroleum fuel products, wastes, liquids, or vapors.~~ In addition to the investigation and monitoring requirements, more stringent spill reporting requirements are needed for MVT because releases from the tanks and associated petroleum fuel and waste conveyance systems are released directly to the soil and therefore, any release from these systems will be, or probably will be, discharged to the waters of the State.
- ~~6.7.~~ The City of San Diego's (City) plans to ~~use~~ develop the groundwater resources located downgradient of the ~~groundwater pollution from the~~ MVT plume for use as a municipal drinking water supply ~~public drinking water by the year 2010, three years before even the most aggressive cleanup and abatement could be expected to reduce the concentration of waste constituents in the affected water body to levels consistent with water quality objectives for municipal supply.~~ In the event that When the City builds and operates its proposed groundwater development project, Dischargers should have a Drinking Water Well Protection Contingency Plan to ensure protection of water quality for drinking water water produced from the supply wells located downgradient of the discharger's pollution MVT plume may need to be treated to remove residual constituents, from discharges of petroleum hydrocarbon fuel waste at MVT, before the water can be used for drinking and municipal supply.
8. In the November 1, 2004, "Summary of Understanding" between Kinder Morgan and the City, Kinder Morgan agreed to develop a plan to revise the MVT Site Conceptual Model (SCM), investigate and test more aggressive cleanup technologies, and investigate the utilities under public rights-of-way which may have been impacted by the pollution from MVT.
- ~~7.9.~~ This action is an Order to enforce the laws and regulations administered by the Regional Board. As such, this action is categorically exempt from the provisions of the California Environmental Quality Act (CEQA) pursuant to section 15321 of the Resources Agency Guidelines.

**IT IS HEREBY ORDERED**, pursuant to sections 13267 and 13304 and 13267 of the California Water Code the Dischargers shall cleanup and abate the effects of the discharge by complying with the following directives:

1. Texaco Refining and Marketing Inc., Equilon Enterprises LLC, and Shell Oil Company are hereby removed from the list of Dischargers identified in Cleanup and Abatement Order No. 92-01 and addenda thereto.
- 1.2. By December 31, 2010, The Dischargers shall, as soon as practicable and no later than December 31, 2010 remove residual light non-aqueous phase petroleum liquid (LNAPL) from subsurface soil and ground water beyond MVT to the extent technically practicable.
- 2.3. By December 31, 2013, The Dischargers shall, as soon as practicable and no later than December 31, 2013, reduce concentrations of dissolved phase petroleum hydrocarbon waste constituents<sup>1</sup> in the off property pollution area to attain background water quality conditions<sup>2</sup>. If cleanup to background water quality conditions is technologically or economically infeasible, the Dischargers shall propose alternative groundwater cleanup levels greater than background and provide the Regional Board with technical documentation supporting the alternative cleanup levels, including documentation that will allow the Regional Board to evaluate the proposed alternative cleanup levels in accordance with all the requisite considerations set forth in Title 23, Chapter 15, Article 5, Section 2550.43. Alternative cleanup levels shall be sufficiently stringent to ensure that all ground water in the affected water body will meet applicable water quality objectives needed to protect present and anticipated beneficial uses of waters, including both primary and secondary Maximum Contaminant Levels, and not result in water quality less than that prescribed in the to-levels that are equal to or less than applicable water quality objectives pursuant to the Water Quality Control Plan, San Diego Region ("Basin Plan").
- 3.4. By July 29, 2005, the The Dischargers shall, as soon as practicable and no later than July 29, 2005, implement measures to prevent any further migration of petroleum hydrocarbon waste constituents at concentrations in excess of applicable water quality objectives pursuant to the Basin Plan in soil and ground water at the MVT

<sup>1</sup>

Petroleum hydrocarbon waste constituents include, but are not limited to, benzene, toluene, xylene, oxygenate additives (e.g., MTBE), total petroleum hydrocarbons (TPH), and degradation products thereof (e.g. TBA).

<sup>2</sup>

"Background" means the concentrations or measures of constituents or indicator parameters in water or soil that have not been affected by waste constituents/pollutants from the Site.

<sup>3</sup>

23 CCR 2550.4 (c) provides that the Regional Board may establish a cleanup level for a constituent of concern that is greater than the background value of that constituent only if the Regional Board finds that it is technologically or economically infeasible to achieve the background value for that constituent and that the constituent will not pose a substantial present or potential hazard to human health or the environment as long as the cleanup level greater than background is not exceeded. In making this finding, the Regional Board will consider the factors specified in section 2550.4(d), results in site investigation reports, the updated Corrective Action Plan, a feasibility study required by this Order, monitoring data submitted by the Discharger(s) to support the proposed cleanup level greater than background, public testimony on the proposal, and any additional data or information.

property from migrating beyond the property limits of MVT.

~~If the on-property pollution appears to be migrating beyond MVT due to the failure or inadequacy of the existing containment system, the Dischargers shall notify the Regional Board within 24 hours of their determination and shall implement additional interim cleanup and abatement actions to achieve full containment of the on-property pollution immediately. Dischargers shall provide written documentation on any additional interim cleanup and abatement action to the Regional Board within 30 days of implementation of those actions.~~

4.5. By September 9, 2005, the The Dischargers shall, as soon as practicable and no later than September 9, 2005, provide the Regional Board with a technical report that contains containing the following minimum elements:

- a.) A synthesis of results from all previous investigations of the on-property discharge(s) of fuel related pollutants petroleum hydrocarbon waste constituents from the MVT bulk fuel conveyance and storage operations at the MVT. This information shall also be used as a basis to develop and update a Site Conceptual Model (SCM) for pollution located within the MVT property boundaries of the MVT.
- b.) A feasibility study (FS) ~~of~~ to evaluate alternatives, including the cost and effectiveness of each alternative, to cleanup and abate the effects of the on-property from pollutants liquid, vapor and dissolve phase petroleum hydrocarbon waste constituents in soil and groundwater discharged from the operations at the MVT, to attain background water quality conditions <sup>2</sup>. If cleanup to background water quality conditions is technologically or economically infeasible, the Dischargers shall propose alternative groundwater cleanup levels greater than background and provide the Regional Board with their technical evaluation, including all the requisite considerations set forth in Title 23, Chapter 15, Article 5, Section 2550.4. Alternative cleanup levels shall be sufficiently stringent to ensure that all ground water in the affected water body will meet applicable water quality objectives needed to protect present and anticipated beneficial uses of waters, including both primary and secondary Maximum Contaminant Levels, and not result in water quality less than that prescribed in the Water Quality Control Plan, San Diego Region ("Basin Plan").
- c.) The feasibility study must clearly identify the ~~Identification of~~ Dischargers' preferred cleanup and abatement method(s), and any potential adverse impacts to the groundwater quality resulting from implementation of the proposed preferred method(s). ~~upon the cleanup and abatement of waste beyond MVT.~~
- d.) A ~~P~~proposed schedule for timely cleanup of residual petroleum waste constituents in soil and ground water on-at the MVT property environmental pollution. The proposed cleanup method(s) must address liquid, vapor, and dissolved phase

~~petroleum hydrocarbon pollutants in the soil and groundwater.~~

- e.) A monitoring and reporting program capable of assessing the effectiveness and progress of the Dischargers' cleanup and abatement at MVT.

The Dischargers shall begin implementation of the preferred cleanup method described in Directive 4.c. as soon as practicable and no later than **November 9, 2005** following submission of the Feasibility Study (FS), unless otherwise directed in writing by the Regional Board.

56. The Dischargers shall submit a workplan, as soon as practicable and no later than **July 13, 2005**, submit a workplan that describe describing the findings of an investigation of the need for additional soil vapor extraction wells located in the off-property source zone, especially in the areas along San Diego Mission Road, the area west of RW-31, RW-32, and RW-33, and the area west of RW-3. This workplan must also include plans to evaluate the spatial density of the soil gas monitoring points and ensure adequate coverage has been achieved. Any additional vapor extraction wells proposed should be designed to maximize flow and be directed at deeper portion of target zone within the soils exposed by dewatering. ~~The Dischargers must provide the workplan to the Regional Board by **July 13, 2005**.~~
67. The Dischargers shall, as soon as practicable and no later than **July 29, 2005**, conduct submit a complete soil investigation report to defining e the horizontal and vertical extent of petroleum pollutants in the subsurface soils beyond MVT and provide a complete technical report to the Regional Board by **July 29, 2005**. Soil sampling should shall include analysis of total petroleum hydrocarbons (TPH), analysis, with a reporting of the TPH composition by carbon number ranges (e.g., % of TPH in <C4, C4-C6, etc. ranges) and results from leachability testing (using Synthetic Precipitation and Leaching Procedure – SPLP, EPA Method 1312) of soil core samples to provide establish remedial soil cleanup levels that will be used to ensure improvements to groundwater pollution through time. ~~The R~~results of this assessment should be combined with existing data from soil cores and CPT/LIF to verify the necessary drawdown of groundwater elevation needed to expose residual LNAPL in the soil. ~~By **July 29, 2005**, the Dischargers shall provide the Regional Board with a complete soil investigation report.~~
- 7.8. The Dischargers shall, as soon as practicable and no later than **September 9, 2005**, revise and update or replace the existing Mission Valley Terminal MVT Site Conceptual Model (SCM) and Corrective Action Plan (CAP) (dated October 29, 1999) and submit it to the Regional Board. The updated revised and updated CAP must shall address the cleanup and abatement of off-property pollution located beyond MVT by including the following elements: and provide a comprehensive synthesis of results from investigations of current site conditions, selected cleanup methods, performance metrics, cleanup milestones, and all contingency plans required in this Order.CAO The Dischargers shall provide the Regional Board with a complete revised/replacement CAP and SCM in electronic and paper format by **September 9, 2005**.

~~8.9.~~ The Dischargers shall, within 60 days of notification by the Regional Board City (or any other individual or party) that a public or private water supply well has been installed downgradient of the Discharger's off-property pollution, must develop prepare and submit to the Regional Board, a Drinking Water Well Protection Water Replacement Contingency Plan (Contingency Plan) for the City of San Diego groundwater production water supply wells. This Contingency Plan must include all of the following minimum elements:

- a.) A plan for installation of a groundwater monitoring well network to detect pollution that could impact the groundwater production water supply wells.
- b.) A description of Aactive interim remediation methods that will be implemented should the in the event the monitoring network provide evidence that the off-property pollution could disrupt production of potable water supplies from the City's wells.
- c.) A plan to provide uninterrupted replacement water service, which may include treat (e.g., wellhead treatment) for the public water purveyor or private well owner, or replace the groundwater polluted by the discharger that would have been used for drinking water by the City.

The Regional Board must receive the Contingency Plan within 60 days of the Discharger being notified by the City (or any other individual or party) that a public water supply well has been installed downgradient of the discharger's pollution. The Discharger shall provide a copy of the written notice to the Regional Board within 10 calendar days of receipt from the City.

~~9.10.~~ ~~The discharger~~ Dischargers shall implement the Monitoring and Reporting Program, specified in Attachment 1, commencing with the quarterly report due on July 30, 2005.

~~10.11.~~ The Dischargers shall report ~~report within 24 hours~~ to the Regional Board, all releases of petroleum hydrocarbon waste product/liquid releases (regardless of volume released discharged) from the continuing migration of waste constituents in soil or groundwater, and/or from facilities, equipment, or operations at the MVT. from tanks, sumps, and/or piping systems at the MVT. This includes releases from all tanks (permanent or temporary), all sumps, all product transfer pipelines (including incoming and outgoing intrastate pipelines carrying fuel in the MVT area), all tanks and piping systems containing fuel additives, and all water draw pipelines.

Any information reported pursuant to this Directive shall be provided to the Regional Board orally within 24 hours from the time the Dischargers become aware of the circumstances. The Dischargers shall follow-up the oral report with the submission of a written report to the Regional Board within 5 days of the time the Dischargers become aware of the circumstances. The written report shall include the exact dates, times and locations of the release, the type of product/liquid released, and cause of the release if known. and circumstances of the release, and if the release has not been terminated, the

anticipated time it is expected to continue; the type of petroleum hydrocarbon waste(s) released; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the release.

The following shall be included as information which must be reported within 24-hours under this Directive:

- a.) Any migration of waste constituents through soil or groundwater into the area located beyond the property boundary of MVT.
- b.) Any continuing migration of waste constituents in soil or groundwater that expands the currently known horizontal or vertical extent of the off-property plume.
- c.) All unauthorized and unintentional discharges from tanks (permanent or temporary), sumps, product transfer pipelines (including incoming and outgoing intrastate pipelines carrying fuel in the MVT area), tanks and piping systems containing fuel additives, all water-draw pipelines, and all product transfer operations.
- d.) The Dischargers shall report all instances of noncompliance, for circumstances not included under Directives 11(a), 11(b), 11(c), at the time that the next **quarterly** monitoring report is submitted to the Regional Board. The reports shall contain the same information required for the 5 day written report previously described in this Directive.

The Regional Board may waive the written report on a case-by-case basis, if the oral report has been received within **24 hours**. The Dischargers shall also notify the Office of Emergency Services, the County of San Diego Hazardous Materials Division, and any other agencies that require release reporting, as soon as they have knowledge of a release. The Dischargers shall also provide a written letter report describing any additional interim cleanup and abatement actions implemented to contain any "releases", as previously identified in this Directive, **within 30-days** of implementation of such actions.

**11.12.** Beginning **July 1, 2005**, all reports submitted by the Discharger pursuant to section 13304 and 13267 of the California Water Code must be submitted in an electronic format. This includes all workplans, technical reports, and monitoring reports. The Discharger shall comply with electronic reporting requirements of Title 23, Division 3, Section 3893 including the provision that complete copies of all reports be submitted in PDF format, including the signed transmittal letter and professional certification. In addition to these requirements, please submit paper copies of all figures larger than 8 ½ by 11 inches with the properly signed transmittal letter to the Regional Board.

## **PROVISIONS**



1. **Duty to Comply** - The Discharger(s) shall properly manage handle, store, treat, and/or dispose of soils and ground water that contain waste constituents in accordance with applicable federal, state, and local laws and regulations. The handling, storage, treatment, or disposal of soil, sediment, and groundwater containing waste constituents shall not create conditions of pollution, contamination or nuisance as defined in California Water Code section 13050(m). The Discharger(s) shall, as required by the Regional Board, obtain, or apply for coverage under, waste discharge requirements or a conditional waiver of waste discharge requirements, for the removal of waste from the immediate place of release and for any discharge of the waste to (a) land for treatment, storage, or disposal or (b) waters of the state.
2. **Duty to Operate and Maintain**: The Discharger(s) shall, at all times, properly operate and maintain all facilities and systems of treatment, control, storage, disposal and monitoring (and related appurtenances) which are installed or used by the Discharger(s) to achieve compliance with this Cleanup and Abatement Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities, which are installed by the Discharger(s) only when the operation is necessary to achieve compliance the conditions of this Cleanup and Abatement Order.
3. **Duty to Submit Other Information**: When the Discharger(s) becomes aware that it failed to submit any relevant facts in any report required under this Cleanup and Abatement Order, or submitted incorrect information in any such report, the Discharger(s) shall promptly submit such facts or information to the Regional Board.

## **NOTIFICATIONS**

1. **Enforcement Discretion** --The Regional Board reserves its right to take any enforcement action authorized by law for violations of the terms and conditions of this Cleanup and Abatement Order.
2. **Enforcement Notification**--The California Water Code commencing with Chapter 5, Enforcement and Implementation, Section 13308, provides that if there is a threatened or continuing violation of a cleanup and abatement order, the Regional Board may issue a Time Schedule Order prescribing a civil penalty in an amount not to exceed \$10,000 per day for each day compliance is not achieved in accordance with that time schedule. Section 13350 provides that any person may be assessed administrative civil liability by the Regional Board for violating a cleanup and abatement order in an amount not to exceed \$5,000 for each day the violation occurs, or on a per gallon basis, not to exceed \$10 for each gallon of waste discharged. Alternatively the court may impose civil liability in an amount not to exceed \$15,000 for each day the violation occurs, or on a per gallon basis, not to exceed \$20 for each gallon of waste discharged. Section 13385 provides that any person may be assessed administrative civil liability by the Regional Board for violating a cleanup and abatement order for an activity subject to regulation under Chapter 5.5, commencing with Section 13370, of Division 7 of the California Water

April 13, 2005

Code, in an amount not to exceed the sum of both of the following: (1) \$10,000 for each day in which the violation occurs; and (2) where there is a discharge, any portion of which is not susceptible to cleanup or is not cleaned up, and the volume discharged but not cleaned up exceeds 1,000 gallons, an additional liability not to exceed \$10 multiplied by the number of gallons by which the volume discharged but not cleaned up exceeds 1,000 gallons. Alternatively the civil liability may be imposed by the court in an amount not to exceed the sum of both of the following: (1) \$25,000 for each day in which the violation occurs; and (2) where there is a discharge, any portion of which is not susceptible to cleanup or is not cleaned up, and the volume discharged but not cleaned up exceeds 1,000 gallons, an additional liability not to exceed \$25 multiplied by the number of gallons by which the volume discharged but not cleaned up exceeds 1,000 gallons.

Ordered by: **TENTATIVE**  
John H. Robertus  
Executive Officer

Dated: April 13, 2005

Attachment 1: Tentative Monitoring And Reporting Program

**MISSION VALLEY TERMINAL**

**SUMMARY OF COMPLIANCE DATES FOR  
ADDENDUM NO. 5 TO ORDER NO. 92-01**

<b>DIRECTIVE NO.</b>	<b>SUMMARY OF REQUIREMENT(S)</b>	<b>DUE DATE</b>
<del>11</del> <u>12</u>	Electronic reporting of monitoring data, technical and monitoring reports is required.	<b>After July 1, 2005</b>
<del>5</del> <u>6</u>	Workplan to investigate the need to install additional off-property <del>SVE</del> wells.	<b>July 13, 2005</b>
<del>3</del> <u>4</u>	Prevent any further migration of pollutants beyond the Discharger's property boundary.	<b>July 29, 2005</b>
<del>6</del> <u>7</u>	Complete soil investigation for the off-property source zone area.	<b>July 29, 2005</b>
<del>9</del> <u>10</u>	Quarterly Reports for Monitoring and Reporting Program begins with report on <b>July 30, 2005</b> :  First Quarter (Jan – Mar) Second Quarter (April – June) Third Quarter (July – Sept) Fourth Quarter (Oct – Dec)	<b>April 30</b> <b>July 30</b> <b>October 30</b> <b>January 30</b>
<del>4</del> <u>5</u>	<del>Workplan</del> <b>Technical Report</b> containing proposed method(s) and schedule for timely cleanup of on-property pollution, and associated monitoring plan.	<b>September 9, 2005</b>
<del>7</del> <u>8</u>	Revise existing Corrective Action Plan in compliance with this Order.	<b>September 9, 2005</b>
<del>5</del> <u>5</u>	Begin implementation of preferred remedial method(s) for cleanup and abatement of on-property pollution	<b>November 9, 2005</b>
<del>8</del> <u>9</u>	Drinking Water Well <u>Replacement</u> Contingency Plan	<b>Within 60-days of notification of installation of water supply well</b>
<del>9</del> <u>10</u>	All SVE monitoring points meet performance criteria required by Monitoring and Reporting Program	<b>March 10, 2006</b>
<del>1</del> <u>2</u>	LNAPL removed from subsurface in off-property area to extent practicable	<b>December 31, 2010</b>
<del>2</del> <u>3</u>	Off-property concentrations of dissolved pollutants at or below MCLs	<b>December 31, 2013</b>

## TENTATIVE MONITORING AND REPORTING PROGRAM

KINDER-MORGAN ENERGY PARTNERS, LP o/p SFPP, LP, POWERINE OIL  
COMPANY, SANTA FE PACIFIC PIPELINE PARTNERS, LP, ~~SHELL OIL~~  
~~COMPANY, TEXACO REFINING AND MARKETING INC., EQUILON~~  
~~ENTERPRISES LLC, EXXONMOBIL OIL CORPORATION~~

MISSION VALLEY TERMINAL  
9950 & 9966 SAN DIEGO MISSION ROAD, SAN DIEGO,  
SAN DIEGO COUNTY, CALIFORNIA

1. **AUTHORITY AND PURPOSE:** The dischargers are directed to submit the technical reports required in this Monitoring and Reporting Program (MRP) pursuant to ~~authority granted to the Regional Board under California Water Code sections 13267 and 13304.~~ This MRP is intended to document compliance with Cleanup and Abatement Order No. 92-01 and addenda thereto.
2. **GROUNDWATER MONITORING:** The dischargers shall measure groundwater elevations quarterly in all monitoring wells, and shall collect and analyze samples of groundwater from monitoring wells according to the following schedule:

### Groundwater Monitoring Well Sampling Schedule

- a) All groundwater monitoring wells shall have samples collected and analyzed on a quarterly basis except the following wells, which will be gauged on a quarterly basis, and sampled and analyzed on an annual schedule:

Well Number	Well Number
M-2	R-48AM
M-6	R-48AD
R-4	S-4
R-6	S-5
R-7	S-9
R-8	S-10
R-45AS	S-13
R-45AM	
R-45AD	
R-48AS	

Monitoring wells that are sampled on an annual basis shall be sampled during the fourth quarter of each year.

All sample collection, storage, and analyses shall be performed according to protocols included in the U.S. Environmental Protection Agency (EPA),

*"SW-846: Test Methods for Evaluating Solid Wastes Physical/Chemical Methods"* (Version 5, dated April 1998). All analyses shall be performed in a laboratory certified to perform such analyses by the California Department of Health Services or a laboratory approved by the Regional Board. Specific methods of analysis must be identified. The director of the laboratory whose name appears on the certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Regional Board. If analytical protocols other than U.S. EPA approved methods or Standard Methods are used, the exact methodology must be submitted for review by the Regional Board prior to use.

All samples shall be analyzed using EPA method 8015 for total petroleum hydrocarbons (TPH) quantifying gasoline and diesel fuel fractions and EPA method 8260b for volatile organic compounds including benzene, toluene, ethylbenzene, xylenes, methyl tertiary butyl ether (MTBE), tertiary butyl alcohol (TBA) and all other fuel oxygenates.

- b) All groundwater monitoring wells within the groundwater pollution plume shall be sampled for aerobic and anaerobic biodegradation indicators including pH, dissolved oxygen, alkalinity, methane, ferrous iron, sulfate and nitrate on a quarterly basis.
- c) The Dischargers shall sample any new monitoring or extraction wells quarterly and analyze groundwater samples for the petroleum constituents as required above. The dischargers may propose changes in the above groundwater monitoring requirements. All proposed changes to this monitoring and reporting program must be provided in writing and are subject to approval by the Regional Board.

**3. REMEDIATION MONITORING:** The Dischargers shall monitor the remediation systems, soil vapor, and groundwater to track remediation effectiveness and progress toward cleanup at the site. The reports for remediation system monitoring and performance must include the following minimum information:

- a) On a bi-weekly basis, measure total hydrocarbon concentrations and respirometry gases (O<sub>2</sub>, CO<sub>2</sub>, N) at all soil gas monitoring points. This monitoring can be performed using properly calibrated field instruments, but if field instruments are used, the total hydrocarbon analysis should utilize an FID detector. Of that sample set, analyze a minimum of 25% of the higher concentration samples by GC-FID. GC-MS analyses can be used in place of GC-FID whenever this monitoring program calls for GC-FID vapor or soil analysis, as long as GC-MS is used consistently for all analyses. Report the total hydrocarbon concentration and the composition in terms of carbon number ranges (e.g., % TPH in <C<sub>4</sub>, C<sub>4</sub>-C<sub>6</sub>, etc. ranges). After the first samples have been analyzed, propose a consistent

sample set of soil gas monitoring points that will be included in future analyses by GC-FID.

- b) On a quarterly basis, perform in-situ respirometry test to assess for oxygen uptake/aerobic biodegradation rates using all soil vapor wells within the residual liquid phase petroleum (LNAPL) zone.
- c) On a weekly basis, monitor total hydrocarbon concentrations, vapor flow rates and vacuum at each soil vapor extraction (SVE) well and optimize vapor flow rates for the SVE well network. A properly calibrated FID field instrument can be used to monitor the total hydrocarbon concentration, but lab analysis should also be conducted concurrently with every fourth sample.
- d) On a monthly basis, sample each SVE well and analyze by GC/FID to determine the total concentration and composition in terms of carbon number ranges (e.g., % TPH in <C4, C4-C6, etc. ranges).
- e) Demonstrate bi-weekly that each SVE soil gas monitoring point is:
  - 1) Under vacuum at **ALL** screened depths;
  - 2) Exposed to vapor flow and not water saturated;
  - 3) Sufficiently aerated by the vapor flow such that O<sub>2</sub> concentrations exceed 10% v/v at all depths at each location.

If these performance criteria cannot be met by **March 10, 2006**, ~~than the~~ Dischargers must shall either increase SVE well density or use an alternate technology.

- f) ~~Remediation system operations.~~ The Dischargers shall maintain a table summarizing remediation system operations indicating beginning and end of time periods when the system(s), or components thereof, were either shut down or not able to operate at optimum levels and reasons for the occurrence.
- g) At least every two years (during the Second Quarter), collect soil samples from the source zone to assess the effectiveness of the SVE remediation. Soil analysis must include TPH and TPH fraction/composition analysis (as expressed in carbon number ranges), and results from laboratory based leachate tests (using Synthetic Precipitation and Leaching Procedure – SPLP, EPA Method 1312) to compare with initial soil samples required in Directive No. 6 of CAO 92-01 Addendum No. 5.

4. **QUARTERLY GROUNDWATER MONITORING REPORTS:** The dischargers shall submit quarterly groundwater monitoring reports to the Regional Board **no later than 30 days** following the end of the quarter according to the following schedule:

First Quarter (January -March)	Due no later than April 30
Second Quarter (April-June)	Due no later than July 30
Third Quarter (July-September)	Due no later than October 30
Fourth Quarter (October-December)	Due no later than January 30

This schedule shall commence with the submission of a quarterly monitoring report due on **July 30, 2005**.

The quarterly monitoring reports shall include:

- a) **Transmittal Letter:** The transmittal letter shall discuss any violations and/or petroleum releases during the reporting period and actions taken or planned to correct the problem(s). The letter shall be signed by the discharger's principal executive officer or his/her duly authorized representative, and shall include the following certification statement:

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

In order to assist the Regional Board in processing correspondence and reports submitted in compliance with this cleanup and abatement order, the discharger shall include the following code number in the heading or subject line portion of all correspondence and reports submitted to the Regional Board: TSMC: 40-0054.

- b) **Groundwater Elevations:** Groundwater elevation data shall be presented in tabular form, with well number, date of observation, depth to groundwater, groundwater elevation, top of casing elevations, depths to the top of well screens, length of well screens and total depth for each well included in the monitoring program. All wells containing LNAPL shall also include the measured thickness of LNAPL on the groundwater elevation table. A separate groundwater elevation map must be prepared for each monitored water-bearing zone with the groundwater flow direction and calculated hydrologic gradients(s) clearly indicated in the figures(s). Historical groundwater elevations observed during the previous three-year period shall be tabulated in each report. All historical groundwater elevations must be in tabular format in the fourth quarter report each year. The historical groundwater information may be submitted in electronic or paper format.

**c) Reporting Groundwater Analysis Results:**

1. Analytical results from groundwater samples shall be presented in tabular format and include the following minimum information: well number, sample collection date, and concentration data for each constituent of concern (COC) required in this Order. The Dischargers shall provide an isoconcentration map prepared for each COCs for each monitored water-bearing zone, as appropriate. Time versus concentration plots and distance versus concentration plots shall be prepared for constituents of concern for appropriate wells. Both isoconcentration maps and plots shall be reported in log scale (e.g. 1, 10, 100, 1000, etc.).
2. Provide a site plot plan which clearly illustrates the locations of remediation and monitoring well networks, former/current underground and aboveground storage tank systems (including product piping) and buildings located on site and in the area of the pollution.
3. Provide a site plot plan with the most recent concentrations of total petroleum hydrocarbons and volatile aromatic hydrocarbons (e.g. benzene, toluene, ethylbenzene, total xylenes, MTBE, TBA and other fuel oxygenates).
4. The report shall provide narrative technical interpretations of the groundwater data. The text must include a description of any significant increases in pollutant concentrations since the last report, any measures proposed to address the increases, any changes to the site conceptual model, and any conclusions and recommendations for future action.
5. The report must include analytical methods used, detection limits obtained for each reported constituent, lab analysis results and QA/QC data. A narrative discussion and explanation of any problematic QA/QC data must also be included in the report.
6. The report shall describe sample collection protocol, describe how investigation derived wastes are managed at the site, and include documentation of proper off-site disposal of site derived wastes (including but not restricted to contaminated well purge water, soil cuttings, free petroleum product- LNAPL, etc.).

**d) Remediation Report:** The Remediation Report shall include the following information for all active remediation and any interim remedial actions initiated during the reporting period:

1. Groundwater extraction results shall be reported in a tabular format, for each extraction well and for the site as a whole, expressed in gallons of groundwater extracted per day and total groundwater volume extracted for the quarter.



2. Calculated pollutant removal results, from operation of the groundwater extraction wells and from other cleanup and abatement systems, shall be reported in units of chemical mass per day and total mass for the quarter. The fourth quarter report shall indicate a total mass of pollutants removed for the preceding year.
  3. Historical mass removal results shall be included in the fourth quarterly report each year. Remediation monitoring data are listed in Section 3 of this Monitoring and Reporting Program. Include a discussion and technical analysis of any data trends, system inadequacies, and system changes/upgrades. The narrative section must also indicate scheduled maintenance events for the next reporting period.
  4. Evaluation of effectiveness and assessment of performance. The second and fourth quarter Remediation Reports shall include a complete evaluation of the performance and effectiveness of the remediation system(s) at the site. The evaluation shall include a full report of system operations during the reporting period, and an assessment of whether the systems are adequately performing to meet all the cleanup and performance milestones required in Addendum No. 5 to Order 92-01 and this MRP. If the remediation is not progressing at a rate that will meet one of more of the required milestones; the report narrative shall clearly indicate that expectation and include recommendations for the necessary modifications/enhancements to the configuration and/or operation of the remediation systems.
- e) **Use of Registered Professionals:** The discharger shall provide documentation that plans and reports required under this Order are prepared under the direction of appropriately qualified professionals. California Business and Professions Code Sections 6735, 7835, and 7835.1 require that engineering and geologic evaluations and judgments be performed by or under the direction of registered professionals. A statement of qualifications and registration numbers of the responsible lead professionals shall be included in all plans and reports submitted by the discharger. The lead professional shall sign and affix their registration stamp to the report, plan or document.
- f) **Release Report:** The report shall include a list of all releases, regardless of volume, from the tanks and/or piping systems for the quarter. This includes all tanks (permanent or temporary), all sumps, all product transfer pipelines, and all water-draw pipelines. The report shall also include a site plot plan indicating the location of each release, the date the each release was discovered, the cause of each release, an estimated volume of material/pollutants associated with each release, date the releases were reported to the agencies as required by statute/regulation or this Order, and the mitigation methods employed to repair the problem(s). A list of all

historical releases and mitigation methods shall be included in the fourth quarterly report each year.

- g) **Status Report:** The quarterly report shall describe relevant work completed during the reporting period (e.g. site investigation, interim remedial measures, results of implementation of the Corrective Action Plan) and work planned for the following quarter. The status report shall also indicate any problems in completing site related work during the previous reporting period (e.g., equipment malfunctions, site access problems, *etc.*).

5. **VIOLATION REPORTS:** If the Dischargers violate requirements in the Cleanup and Abatement Order, then the dischargers shall notify the Regional Board office by telephone and facsimile as soon as practicable once the dischargers have knowledge of the violation. Regional Board staff may, ~~depending on violation severity,~~ require the dischargers to submit a separate technical report on the violation within five working days of telephone notification.
6. **OTHER REPORTS:** The Dischargers shall notify the Regional Board verbally prior to any site activities which have the potential to contribute to, create or exacerbate a condition of pollution or nuisance (e.g., cause or contribute to additional contaminant mass or migration of pollution) or which would provide new need for site investigation.
7. **RECORD KEEPING:** The Dischargers or his/her agent shall retain data generated for the above reports, including laboratory results and QA/QC data, for a minimum of six years after origination and shall make them available to the Regional Board upon request.
8. **MONITORING AND REPORTING PROGRAM REVISIONS:** Revisions to the MRP may be ordered by the Regional Board, or requested by the dischargers. Prior to making MRP revisions, the Regional Board will consider the burden, including costs, of the groundwater monitoring reports relative to the benefits to be obtained from these reports.
9. **REPORTING FORMAT:** The format of all monitoring and technical reports provided to the Regional Board in compliance with the MRP shall comply with the requirements of the Directives of Addendum No. 5 to Order 92-01.